In the Claims:

Following is a complete listing of the claims pending in the application, as amended:

1-81. (Cancelled)

82. (New) A method for treating a patient having a wireless marker implanted within the patient relative to a treatment target, comprising:

directing a radiation beam to a beam isocenter for irradiating the patient;

sensing the implanted wireless marker to obtain position information related to a location of the implanted wireless marker; and

determining an actual location of the treatment target at least twelve times per minute based on the position information of the wireless implanted marker and providing feedback of the actual location of the treatment target in a manner that tracks the motion of the treatment target while sensing the marker.

83. (New) The method of claim 82, further comprising computing a relative position between the treatment target and the beam isocenter in three dimensions based on the actual location of the treatment target.

84. (New) The method of claim 82, further comprising computing a displacement between the treatment target and the beam isocenter in three dimensions based on the actual location of the treatment target, and providing feedback further comprises providing the displacement to at least one of (a) an operator, (b) a control system and (c) a radiation delivery device at least every five seconds to maintain the treatment target within an acceptable range relative to the beam isocenter.

85. (New) The method of claim 82, further comprising computing a displacement between the treatment target and the beam isocenter in three

dimensions, and moving the patient according to the computed displacement in real time while sensing the marker.

86.   (New)   The method of claim 82, further comprising computing a displacement between the treatment target and the beam isocenter in three dimensions, and moving the patient according to the computed displacement in real time while irradiating the patient.

87.   (New) The method of claim 82, further comprising:

computing a displacement between the treatment target and the beam isocenter in three dimensions based on the actual location of the treatment target;

providing feedback by providing the computed displacement to at least one of (a) an operator, (b) a control system and (c) a radiation delivery device at least every five seconds; and

moving the patient based on the computed displacement to maintain the treatment target within an acceptable range of the beam isocenter while irradiating the patient.

88.   (New) The method of claim 82 wherein the implanted marker comprises a resonating marker that wirelessly transmits a signal in response to a wirelessly transmitted excitation energy, and the method further comprises exciting the marker with the excitation energy.

89.   (New) The method of claim 82 wherein the implanted marker comprises a marker that transmits a magnetic field in response to an alternating magnetic field, and the method further comprises exciting the marker with the alternating magnetic field.

90.   (New) The method of claim 89 wherein sensing the marker comprises detecting a field strength of the magnetic field transmitted by the marker using a coil.

91.   (New) The method of claim 82 further comprising tracking another marker attached to the patient externally.

92.   (New) A method for treating a patient after implanting a wireless marker in the patient at a site relative to a treatment target, the method comprising:

   irradiating at least a portion of the patient with a radiation beam directed to a beam isocenter;

   sensing a characteristic of the marker using a sensor while irradiating the patient;

   determining an actual position of the treatment target based on the sensed characteristic of the marker; and

   providing feedback information correlating the actual position of the treatment target with the beam isocenter generally while the patient is proximate to the sensor.

93.   (New) The method of claim 92 wherein providing feedback information comprises computing a displacement between the treatment target and the beam isocenter in three dimensions based on the actual location of the treatment target.

94.   (New) The method of claim 92 wherein providing feedback information comprises computing a displacement between the treatment target and the beam isocenter in three dimensions based on the actual location of the treatment target, and providing the computed displacement to at least one of (a) an operator, (b) a control system and (c) a radiation delivery device at least every five seconds to maintain the treatment target within an acceptable range relative to the beam isocenter.

95.   (New) The method of claim 92 wherein providing feedback information comprises computing a displacement between the treatment target and the beam isocenter in three dimensions, and moving the patient according to the computed displacement.

96.   (New) The method of claim 92 wherein providing feedback information comprises:

    computing a relative position between the treatment target and the beam isocenter in three dimensions based on the actual location of the treatment target;

    providing the computed relative position to at least one of (a) an operator, (b) a control system and (c) a radiation delivery device at least every five seconds; and

    moving the patient based on the computed relative position in a manner that maintains the treatment target within an acceptable range relative to the beam isocenter.

97.   (New) A method for treating a patient having a wireless marker implanted relative to a treatment target, comprising:

    placing the patient on a patient support of a radiation delivery device such that the wireless marker can be sensed by a sensor;

    irradiating at least a portion of the patient with a radiation beam directed to a beam isocenter;

    obtaining position information about the position and/or orientation of the wireless marker from the sensor;

    determining an actual location of the treatment target relative to the beam isocenter based on the position information obtained from the sensor; and

    computing a relative position between the treatment target and the beam isocenter based on the actual location of the treatment target at least twelve times per minute while the patient is on the patient support.

98.   (New) The method of claim 97 wherein computing the relative position between the treatment target and the beam isocenter is performed while irradiating the patient.

99.   (New) A method for treating a treatment target of a patient, comprising:

directing a radiation beam to the patient;

sensing a response signal from a marker attached to the patient to obtain position information related to a location of the marker, wherein the marker generates the response signal in reaction to an excitation energy; and

determining an actual location of the treatment target at least twelve times per minute based on the position information of the marker to track the motion of the treatment target while sensing the marker.

100.   (New) The method of claim 99 wherein the marker comprises a wireless marker implanted in the patient, and the method further comprises wirelessly transmitting the excitation energy to the marker and wirelessly transmitting the response signal from the marker.

101.   (New) The method of claim 99, further comprising computing a relative position between the treatment target and the beam isocenter in three dimensions based on the actual location of the treatment target.

102.   (New)   The method of claim 99, further comprising computing a displacement between the treatment target and the beam isocenter in three dimensions based on the actual location of the treatment target, and providing the displacement to at least one of (a) an operator, (b) a control system and (c) a radiation delivery device at least every five seconds to maintain the treatment target within an acceptable range relative to the beam isocenter.

103.   (New)   The method of claim 99, further comprising computing a displacement between the treatment target and the beam isocenter in three dimensions, and moving the patient according to the computed displacement while sensing the marker.

104. (New) The method of claim 99, further comprising computing a displacement between the treatment target and the beam isocenter in three dimensions, and moving the patient according to the computed displacement while irradiating the patient.

105. (New) The method of claim 99 wherein the implanted marker comprises a resonating marker that wirelessly transmits a signal in response to a wirelessly transmitted excitation energy, and the method further comprises exciting the marker with the excitation energy.

106. (New) The method of claim 99 wherein the implanted marker comprises a magnetic marker that transmits a magnetic field in response to an alternating magnetic field, and the method further comprises exciting the marker with the alternating magnetic field.

107. (New) In radiation therapy using a radiation beam, a method for tracking a portion of the patient comprising:

sensing a characteristic of a wireless marker implanted within the patient to obtain position information related to the location of the wireless marker; and

determining an actual location of the portion of the patient based on the position information and providing feedback of the actual location of the portion of the patient while sensing the marker.

108. (New) The method of claim 107 wherein the portion of the patient comprises a treatment target and the method further comprises computing a displacement between the treatment target and a beam isocenter of the radiation beam.

109.   (New) The method of claim 107 wherein providing feedback of the actual location of the portion of the patient comprises providing data in a manner that tracks movement of the portion of the patient.

110.   (New) The method of claim 109 wherein providing feedback of the actual location of the portion of the patient comprises providing data to a user interface.

111.   (New) The method of claim 107 wherein providing feedback of the actual location of the portion of the patient comprises providing a graphical representation of the actual location of the portion of the patient.

112.   (New) The method of claim 107 wherein providing feedback of the actual location of the portion of the patient comprises providing a visual representation of the actual location of the portion of the patient relative to a beam isocenter of the radiation beam.

113.   (New) The method of claim 107 wherein providing feedback of the actual location of the portion of the patient comprises generating a signal via a computer that controls the radiation beam.

114.   (New) The method of claim 107 wherein providing feedback of the actual location of the portion of the patient comprises providing data to a patient support system to control movement of the patient.

115.   (New) The method of claim 107, further comprising computing a relative position between the portion of the patient and a beam isocenter of the radiation beam in three dimensions based on the actual location of the portion of the patient.

116. (New) The method of claim 115 wherein providing feedback of the actual location of the portion of the patient comprises providing the computed relative position to a user interface and/or a radiation delivery device.

117. (New) In radiation therapy using a radiation beam, a method for tracking the patient comprising:

sensing a characteristic of a wireless marker implanted within the patient to obtain position information related to the location of the wireless marker; and

determining an actual location of the marker based on the position information and providing feedback of the actual location of the marker while the patient is proximate to a sensor that obtains the position information of the target.

118 (New) In radiation therapy using a radiation beam, a method for tracking a treatment target of the patient comprising:

sensing a characteristic of a wireless marker implanted within the patient to obtain position information related to the location of the wireless marker; and

determining an actual location of the treatment target based on the position information and providing feedback of the actual location of the treatment target in a manner that tracks motion of the treatment target while sensing the marker.

119. (New) In radiation therapy using a radiation delivery system having a radiation source that directs a radiation beam to a beam isocenter, an apparatus for locating and tracking a treatment target in a patient comprising:

a wireless marker configured to be implanted in the patient at a site relative to the treatment target;

a sensor that obtains position information about the location and/or orientation of the marker; and

a computer operatively coupled to the sensor, the computer having a computer operable medium containing instructions that cause the computer to (a) receive the position information data from the sensor 12 or more times per minute, (b) determine an actual location of the treatment target, and (c) compute a displacement between the treatment target and the beam isocenter while the sensor obtains the position information.

120. (New) The apparatus of claim 119 wherein the instructions contained by the computer operable medium further cause the computer to compute the displacement between the treatment target and the beam isocenter in three dimensions based on the actual location of the treatment target.

121. (New) The apparatus of claim 119 wherein the instructions contained by the computer operable medium further cause the computer to:

compute the displacement between the treatment target and the beam isocenter in three dimensions based on the actual location of the treatment target; and

provide the computed displacement between the treatment target and the beam isocenter to at least one of (a) an operator, (b) a control system and (c) a radiation delivery device at least every five seconds while irradiating the patient.

122. (New) The apparatus of claim 119 wherein the instructions contained by the computer operable medium further cause the computer to compute the displacement between the treatment target and the beam isocenter in three dimensions based on the actual location of the treatment target so that the patient can be moved according to the computed displacement while the sensor obtains the position information.

123. (New) The apparatus of claim 119 wherein the instructions contained by the computer operable medium further cause the computer to:

compute the displacement between the treatment target and the beam isocenter in three dimensions based on the actual location of the treatment target; and

provide the computed displacement between the treatment target and the beam isocenter to at least one of (a) an operator, (b) a control system and (c) a radiation delivery device at least every five seconds so that the patient can be moved while the sensor obtains the position information to maintain the treatment target in an acceptable range from the beam isocenter.

124. (New) In radiation therapy using a radiation delivery system having a radiation source that directs a radiation beam to a beam isocenter, an apparatus for locating and tracking a treatment target in a patient comprising:

a wireless marker configured to be implanted in the patient at a site relative to the treatment target;

a sensor that obtains position information about the location and/or orientation of the marker; and

a computer operatively coupled to the sensor, the computer having a computer operable medium containing instructions that cause the computer to perform the method of (a) directing the radiation beam to the beam isocenter for irradiating the patient, (b) sensing the wireless marker to obtain position information related to a location of the wireless marker, and (c) determining an actual location of the treatment target at least twelve times per minute based on the position information of the wireless marker and providing feedback of the actual location of the treatment target in a manner that tracks the motion of the treatment target while sensing the marker.

125. (New) In radiation therapy using a radiation delivery system having a radiation source that directs a radiation beam to a beam isocenter, an apparatus for locating and tracking a treatment target in a patient comprising:

a wireless marker configured to be implanted in the patient at a site relative to the treatment target;

a sensor that obtains position information about the location and/or orientation of the marker; and

a computer operatively coupled to the sensor, the computer having a computer operable medium containing instructions that cause the computer to perform the method of (a) irradiating at least a portion of the patient with the radiation beam, (b) sensing a characteristic of the marker using the sensor while irradiating the patient, (c) determining an actual position of the treatment target based on the sensed characteristic of the marker, and (d) providing feedback information correlating the actual position of the treatment target with the beam isocenter generally while the patient is proximate to the sensor.

126. (New) In radiation therapy using a radiation delivery system having a radiation source that directs a radiation beam to a beam isocenter, an apparatus for locating and tracking a treatment target in a patient comprising:

a wireless marker configured to be implanted in the patient at a site relative to the treatment target;

a sensor that obtains position information about the location and/or orientation of the marker; and

a computer operatively coupled to the sensor, the computer having a computer operable medium containing instructions that cause the computer to perform a method while the patient is on a patient support of the radiation delivery system such that the wireless marker can be sensed by the sensor, the method comprising (a) irradiating at least a portion of the patient with the radiation beam, (b) obtaining position information about

the position and/or orientation of the wireless marker from the sensor, (c) determining an actual location of the treatment target relative to the beam isocenter based on the position information obtained from the sensor, and (d) computing a relative position between the treatment target and the beam isocenter based on the actual location of the treatment target at least twelve times per minute while the patient is on the patient support.

127. (New) In radiation therapy using a radiation delivery system having a radiation source that directs a radiation beam to a beam isocenter, an apparatus for locating and tracking a treatment target in a patient comprising:

a wireless marker configured to be implanted in the patient at a site relative to the treatment target, wherein the marker generates a response signal in reaction to an excitation energy;

a sensor that obtains position information about the location and/or orientation of the marker; and

a computer operatively coupled to the sensor, the computer having a computer operable medium containing instructions that cause the computer to perform the method of (a) directing the radiation beam to the patient, (b) sensing the response signal from the marker to obtain position information related to a location of the marker, and (c) determining an actual location of the treatment target at least twelve times per minute based on the position information of the marker to track the motion of the treatment target while sensing the marker.

128. (New) In radiation therapy using a radiation delivery system having a radiation source that directs a radiation beam to a beam isocenter, an apparatus for locating and tracking a portion of a patient comprising:

a wireless marker configured to be implanted in the patient at a site relative to the portion of the patient;

a sensor that obtains position information about the location and/or orientation of the marker; and

a computer operatively coupled to the sensor, the computer having a computer operable medium containing instructions that cause the computer to perform the method of (a) sensing a characteristic of the marker to obtain position information related to the location of the marker, and (b) determining an actual location of the portion of the patient based on the position information and providing feedback of the actual location of the portion of the patient while sensing the marker.

129. (New) In radiation therapy using a radiation delivery system having a radiation source that directs a radiation beam to a beam isocenter, an apparatus for tracking a patient comprising:

a wireless marker configured to be implanted in the patient;

a sensor that obtains position information about the location and/or orientation of the marker; and

a computer operatively coupled to the sensor, the computer having a computer operable medium containing instructions that cause the computer to perform the method of (a) sensing a characteristic of the marker to obtain position information related to the location of the marker, and (b) determining an actual location of the marker based on the position information and providing feedback of the actual location of the marker while the patient is proximate to the sensor that obtains the position information of the target.

130. (New) In radiation therapy using a radiation delivery system having a radiation source that directs a radiation beam to a beam isocenter, an apparatus for tracking a patient comprising:

a wireless marker configured to be implanted in the patient;

a sensor that obtains position information about the location and/or orientation of the marker; and

a computer operatively coupled to the sensor, the computer having a computer operable medium containing instructions that cause the computer to perform the method of (a) sensing a characteristic of the marker to obtain position information related to the location of the marker, and (b) determining an actual location of the marker based on the position information and providing feedback of the actual location of the marker in a manner that tracks motion of the marker while sensing the marker.